The unintegrated Gluon distribution in Nuclei at small x_B and minijet cross sections in Nucleus Nucleus collisions

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Abstract

A new dipole-proton cross section is derived including nonperturbative and perturbative color correlations. It is used to estimate the un-integrated gluon distribution functions in nuclei. We compare the un-integrated gluon distributions for different models of the dipole nucleon cross section. Using these un-integrated gluon distribution functions and the gauge invariant $2 \to 2$ gluon-gluon fusion partonic cross sections for non-zero transverse momenta associated with the initial partons, we calculate the minijet production processes in nucleus-nucleus collisions in perturbative QCD and estimate the initial transverse energy density from mini-jets. We also study azimuthal correlations of two jet events.

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